ANATOMY OF THE FEMUR

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THE FEMUR

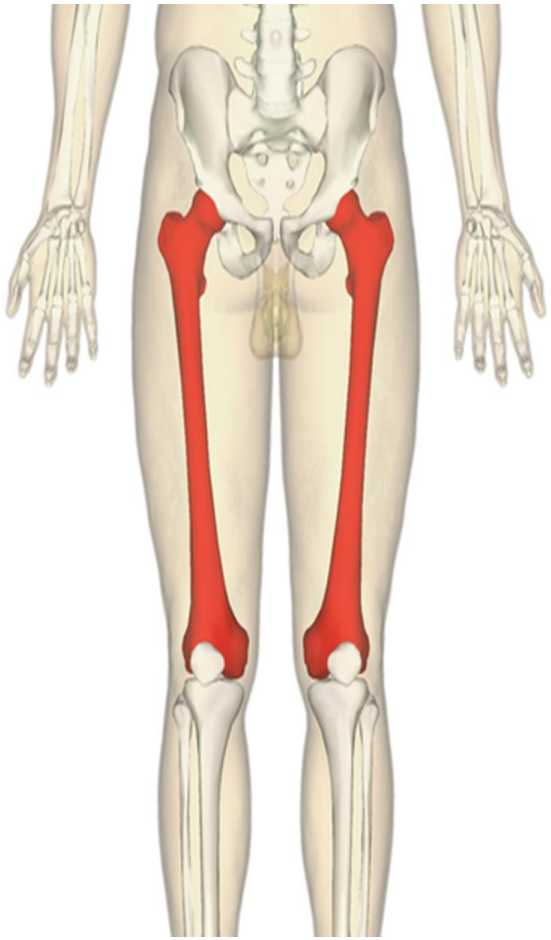
The femur is the longest and the strongest bone of the body.

It has a head, neck, shaft and an expanded lower end.

The head is more than half of a sphere and is directed upwards, medially and forwards.

The head of the femur articulates with the acetabulum of the pelvis to create the hip joint.

It is intra-articular and covered with cartilage apart from a central pit called the fovea, where the ligamentum teres is attached

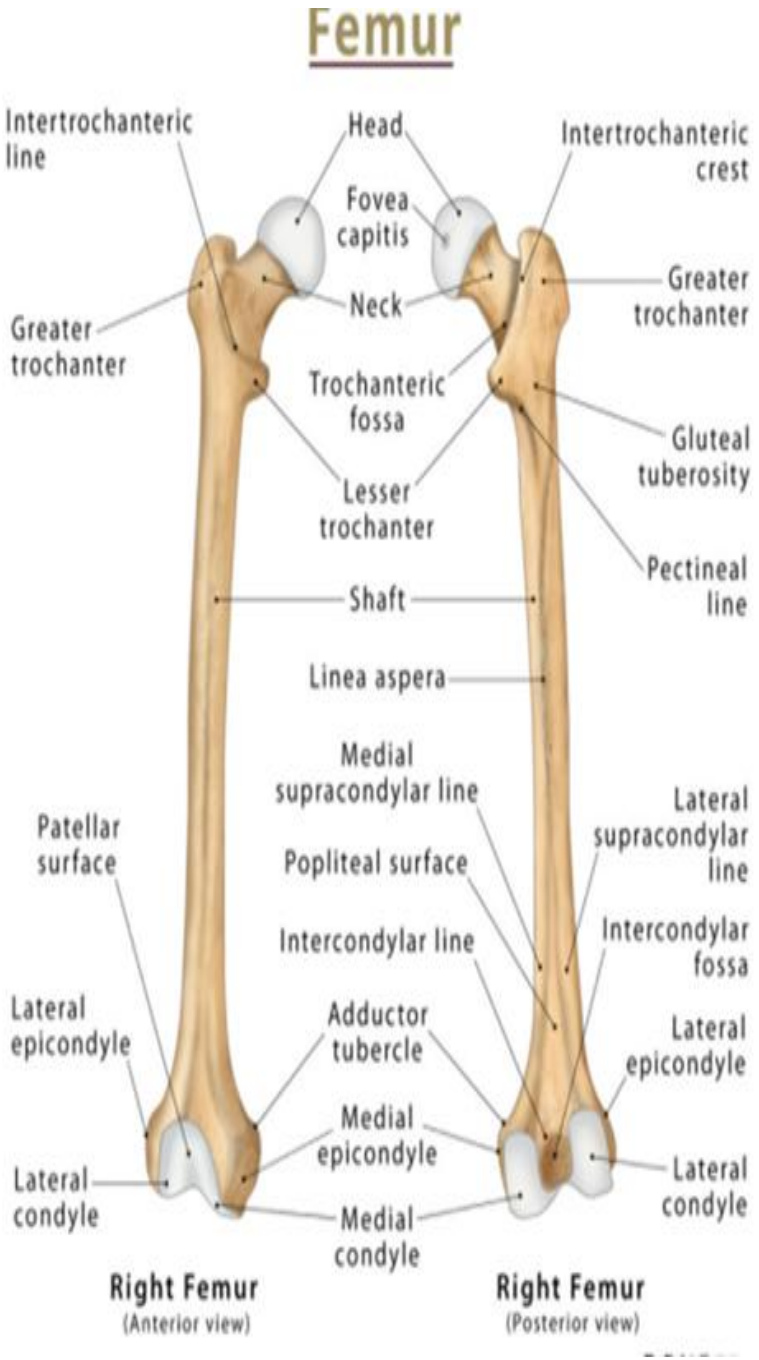


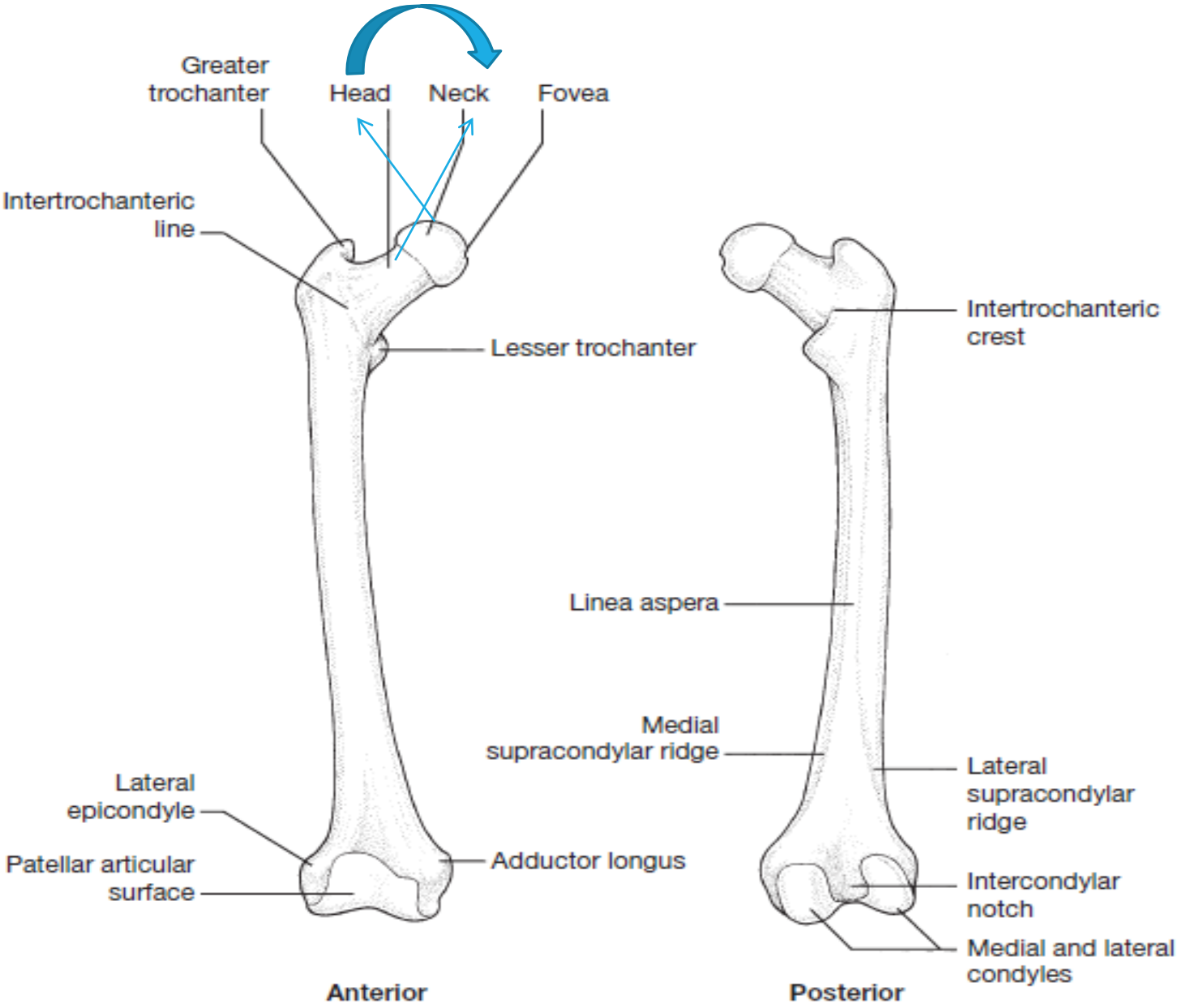
The neck of the femur is about 5 cm long and forms an angle of 125° in females to 130° in males with the shaft.

It is also anteverted, that is, it is directed anteriorly at an angle of about 10° with the sagittal plane.

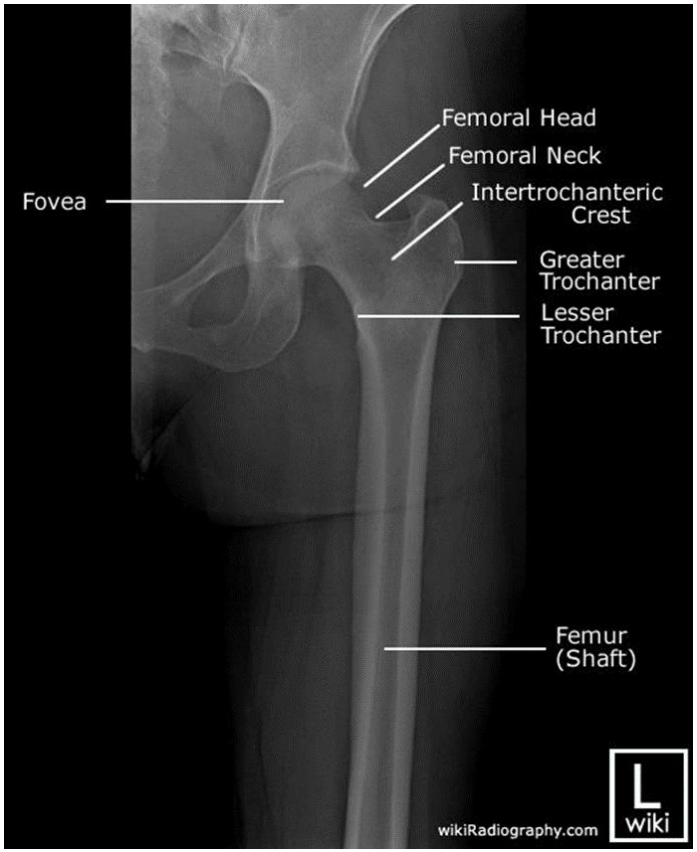
The lower end of the femur is expanded into two prominent condyles united anteriorly as the patellar surface, but separated posteriorly by a deep intercondylar notch.

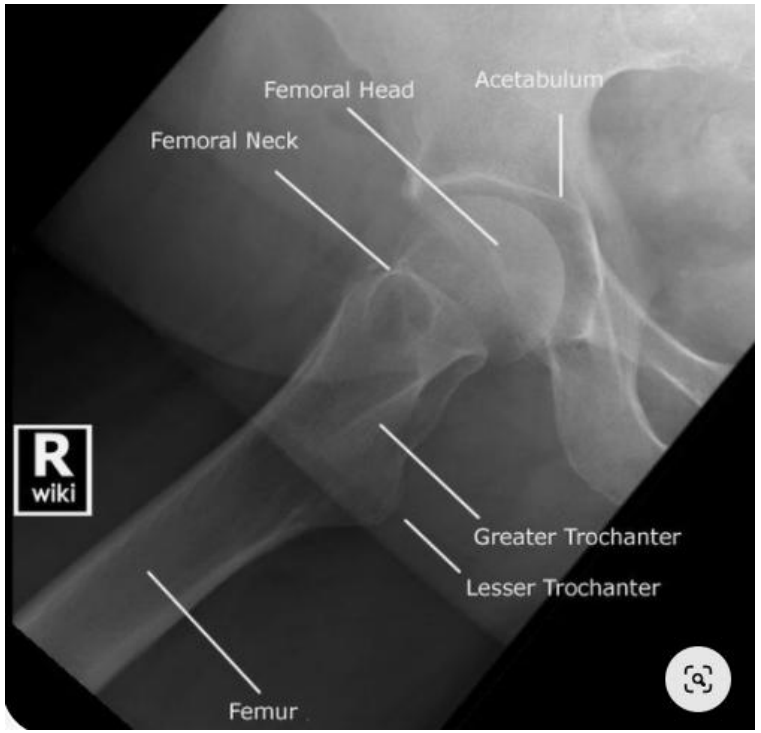
The most prominent parts of each condyle are called the medial and lateral epicondyles.




Greater trochanter
Head
Neck
Fovea
Intertrochanteric line
Lesser trochanter
Lateral epicondyle
Patellar articular surface
Adductor longus
Anterior
Intertrochanteric crest
Linea aspera
Medial supracondylar ridge
Lateral supracondylar ridge
Intercondylar notch
Medial and lateral condyles
Posterior

AP AND LATERAL VIEW OF THE FEMUR

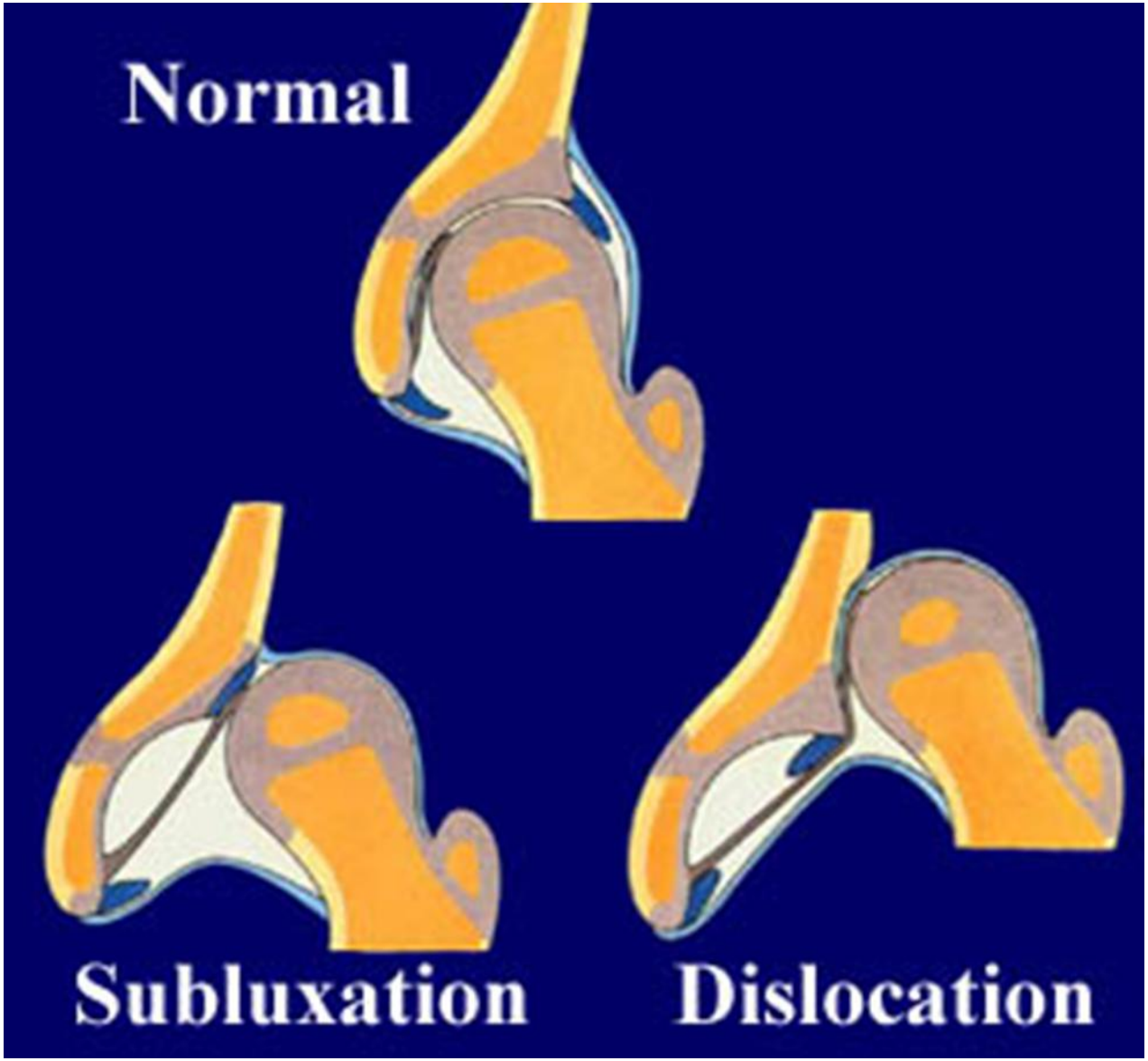




DEVELOPMENTAL DYSPLASIA OF THE HIP (DDH)

Previously known as congenital dislocation of the hip (CDH).

Now DDH because it comprises a spectrum of disorders ranging from acetabular dysplasia without dislocation to instability (dislocation or subluxation), the unstable hip could be reduced but it is dislocatable or it is dislocated which is either reducible or irreducible.


Normal
Subluxation
Dislocation

X-ray:

during the first 6 months the femoral head & the acetabulum are largely cartilaginous & the x-ray is not useful therefore the best way for the diagnosis is the ultrasound.

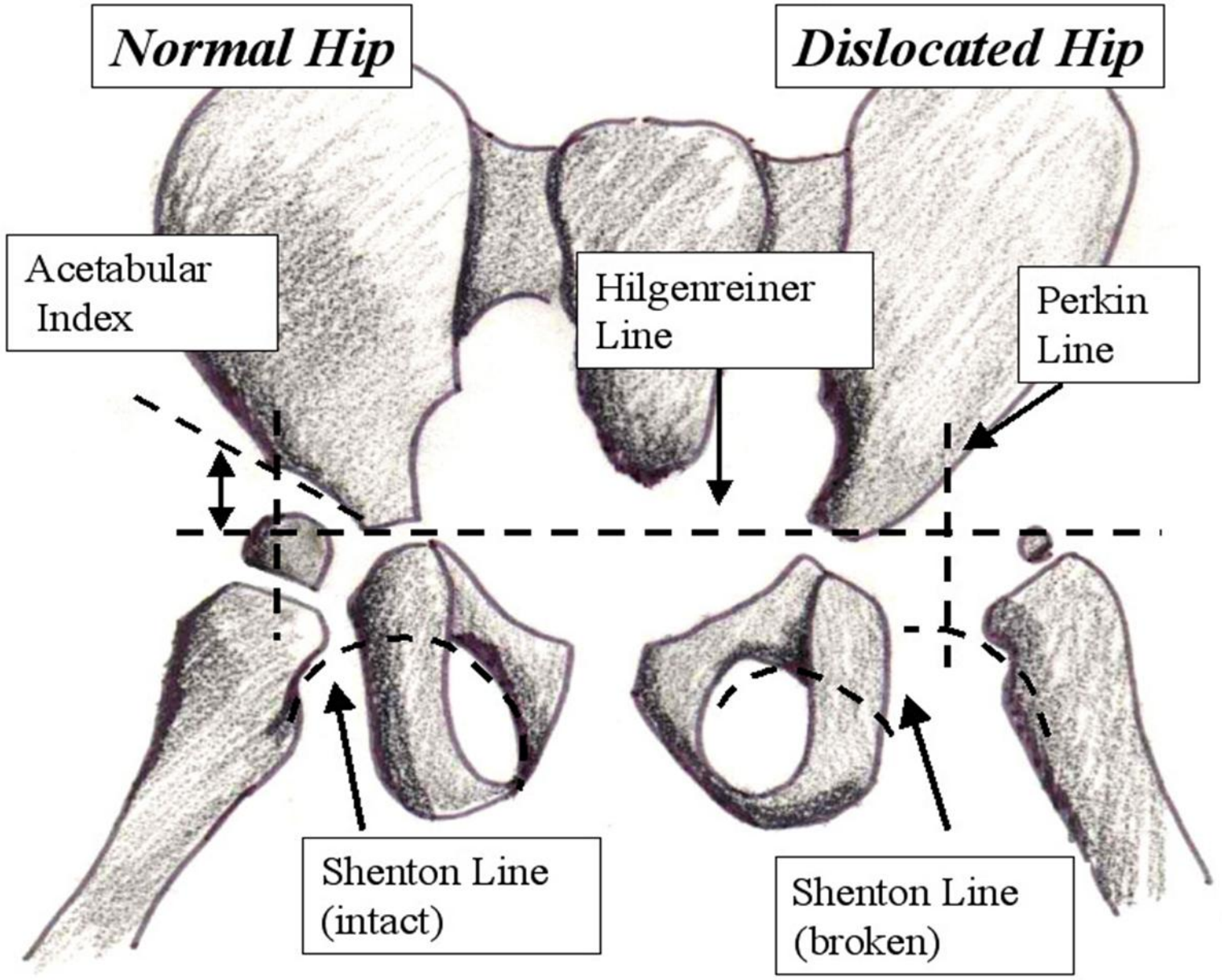
After 6 months there are several radiological lines can be used

(1) Shenton's line ; normally a line drown along the inferior border of the femoral neck should be continuous with the line on the inferior border of the superior pubic ramus, if it is broken then the hip is dislocated or sublaxed.

(2) Perkin's line; it is a vertical line along the outer edge of the acetabulum, the femoral head should be medial to this line.

(3)Hilgenreiner's line; it is a horizontal line that pass through the center of the triradiate cartilage, the femoral head should be below this line.

(4) Von Rosen's line; with the hip abducted to 45 the femoral shaft should point to the acetabulum.


Normal Hip
Dislocated Hip
Acetabular Index
Hilgenreiner Line
Perkin Line
Shenton Line (intact)
Shenton Line (broken)

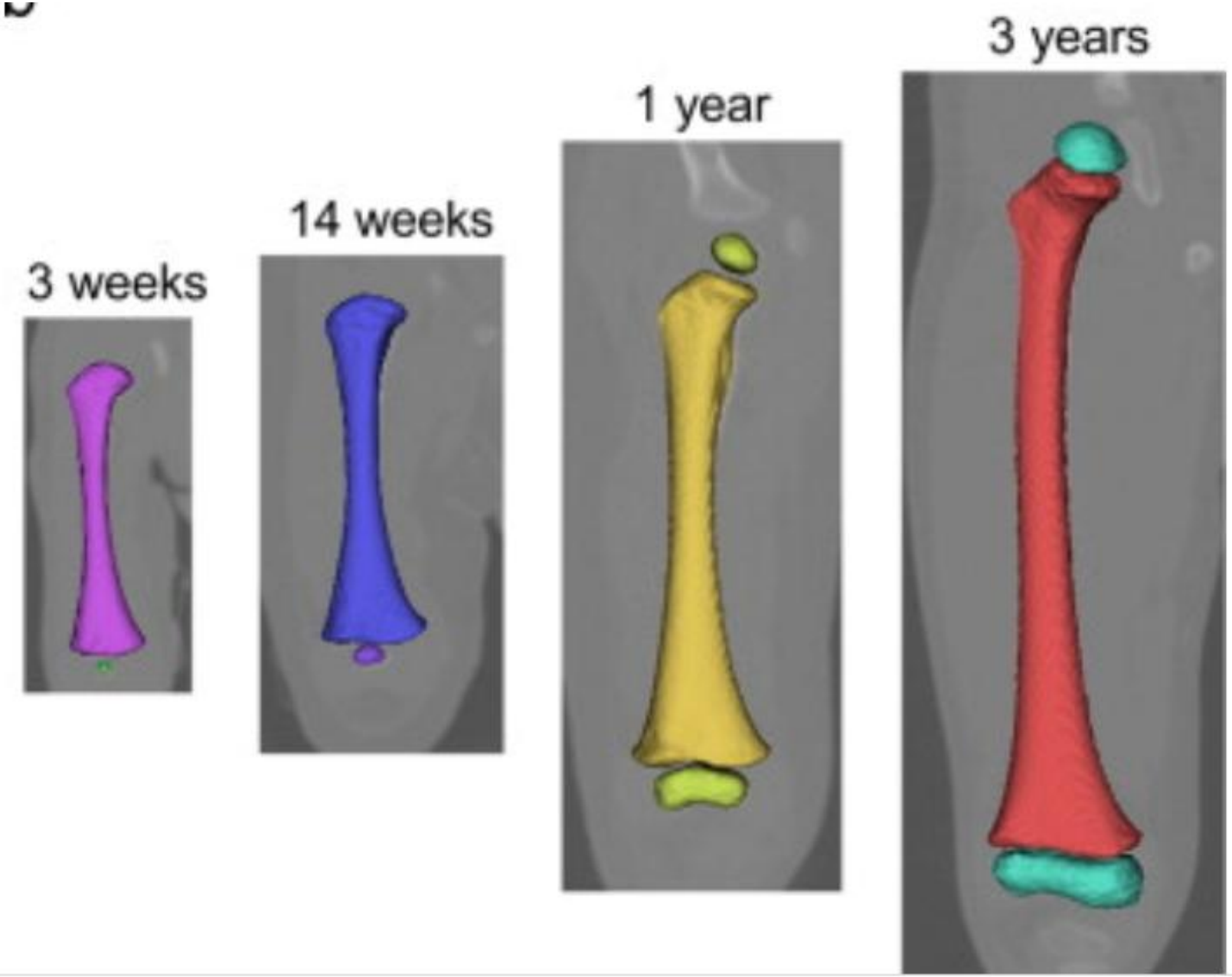
OSSIFICATION OF THE FEMUR

The primary center in the shaft appears in the seventh fetal week

A secondary center is present in the lower femur at birth (this is a reliable indicator that the fetus is full term) and another appears in the head between 6 months and 1 year of age

Secondary centers appear in the greater trochanter at 4 years and in the lesser trochanter at 8 years of age

All fuse at 18 – 20 years of age


3 weeks
14 weeks
1 year
3 years

MUSCLE OF THE FEMUR

gluteus medius

gluteus minimus

piriformis

obturator internus

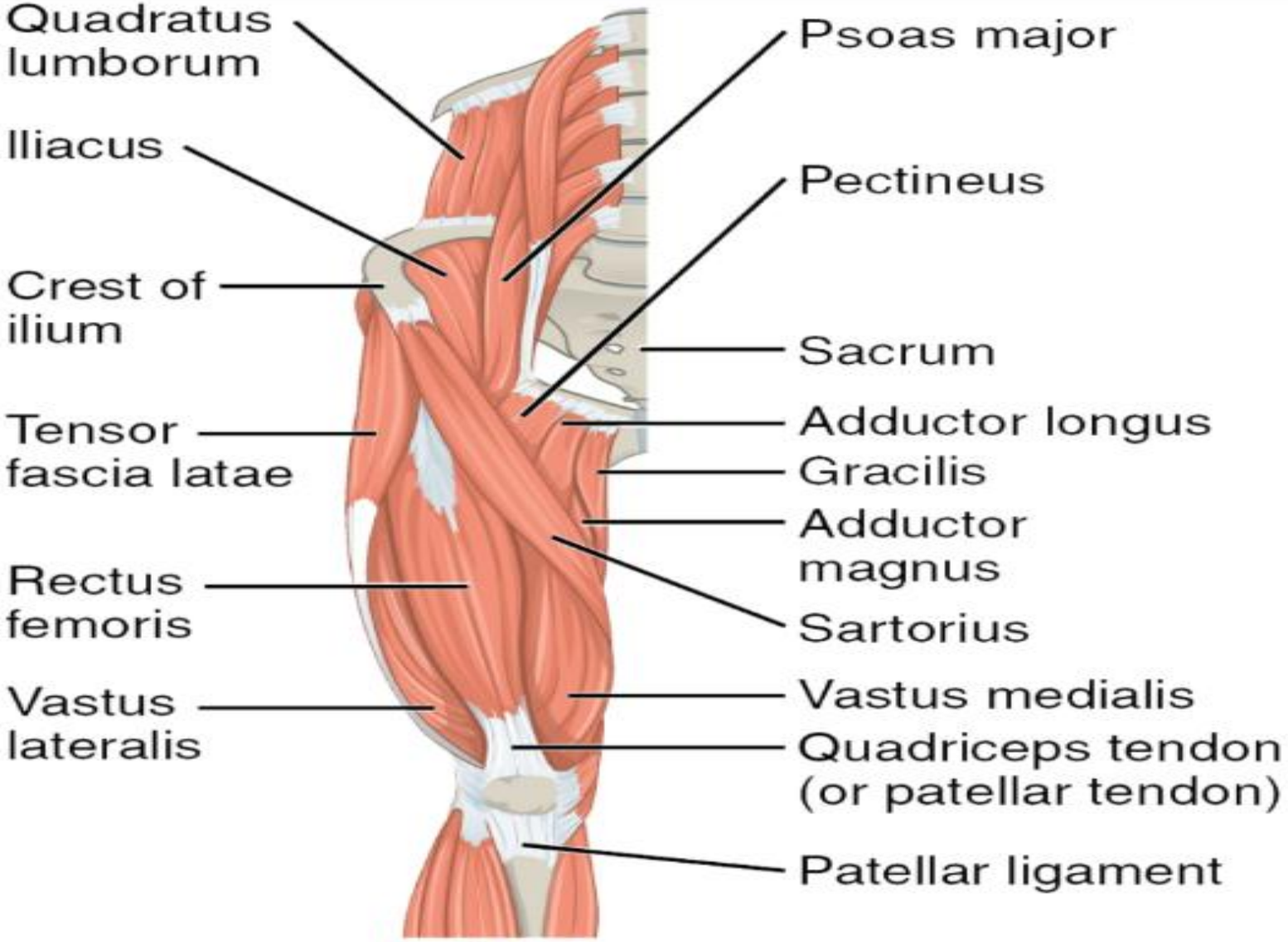
gemelli

obturator externus

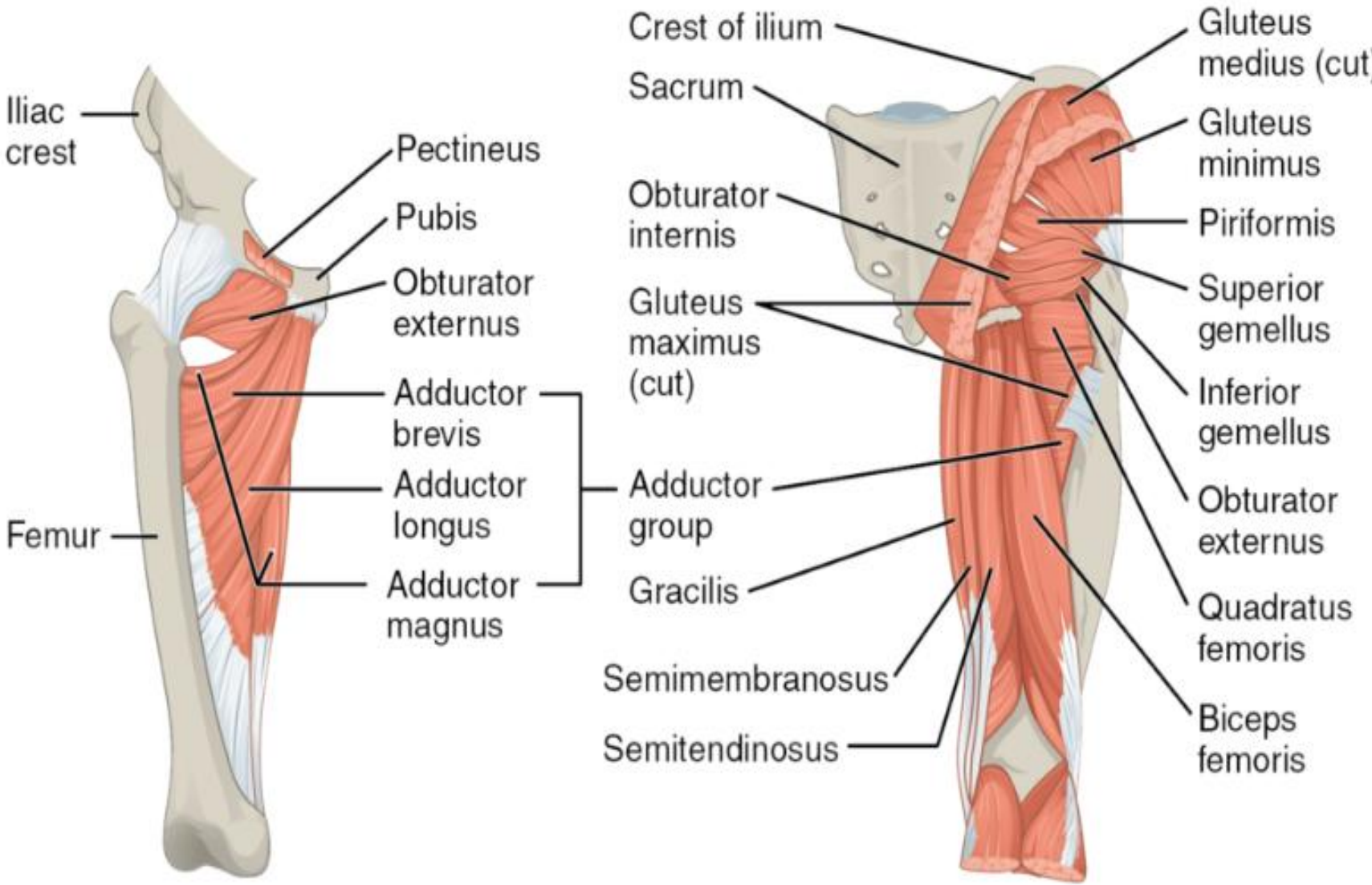
quadratus femoris

vastus lateralis

iliopsoas

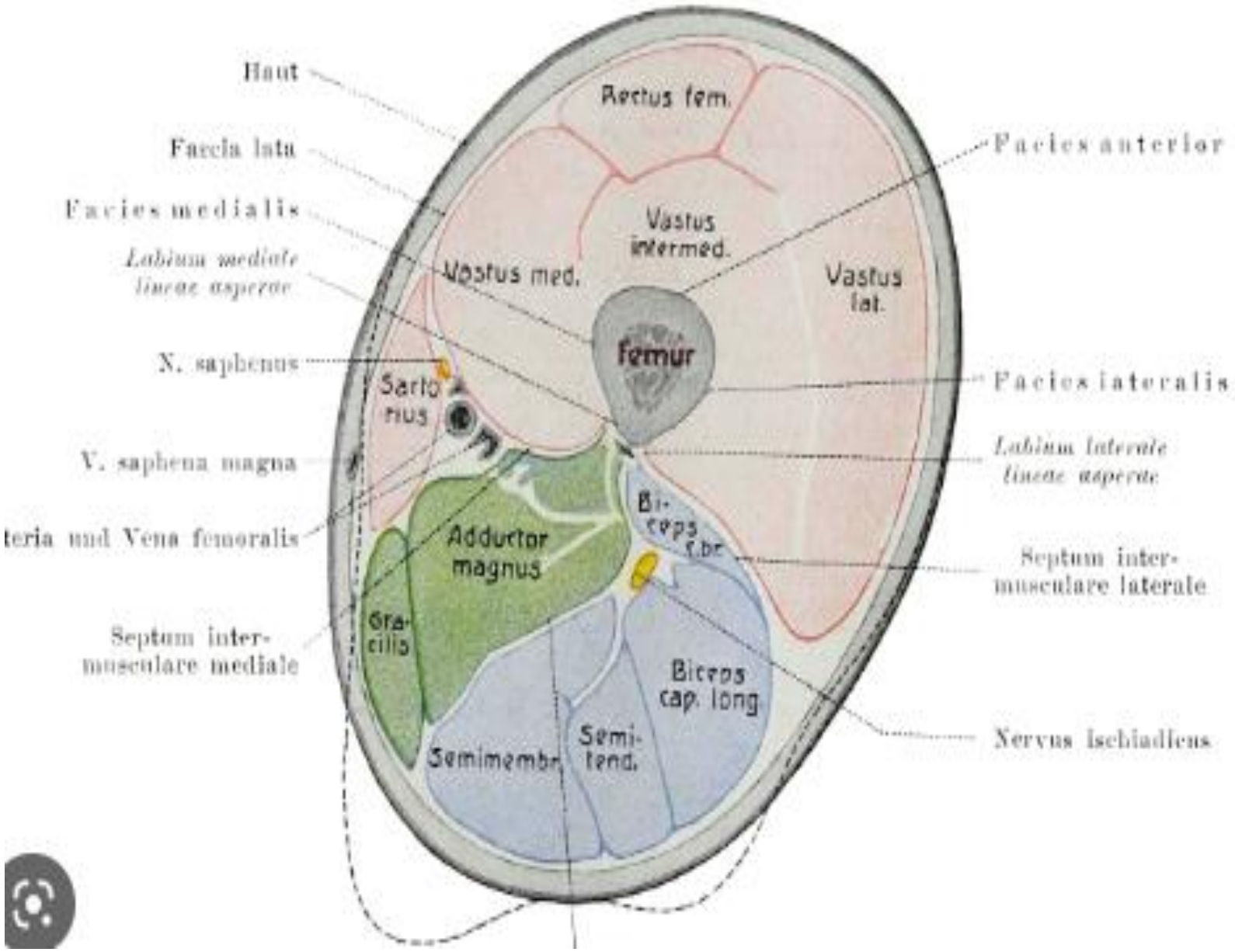


Superficial pelvic and thigh muscles of right leg (anterior view)



Deep pelvic and thigh muscles of right leg (anterior view)

Pelvic and thigh muscles of right leg (posterior view)


Haut
Faccia lata
Facies medialis
Labium mediale lineae asperae
N. saphenus
V. saphena magna
teria und Vena femoralis
Septum intermusculare mediale
Rectus fem.
Vastus intermed.
Vastus med.
Vastus lat.
femur
Sartorius
Adductor magnus
Gracilis
Bi-ceps f.br
Biceps cap. long
Semimembr.
Semi-tend.
Facies anterior
Facies lateralis
Labium laterale lineae asperae
Septum intermusculare laterale
Nervus ischiadicus

FRACTURE OF THE FEMUR

Femoral neck fracture

Femoral neck fractures are a subset of proximal femoral fractures. The femoral neck is the weakest part of the femur.

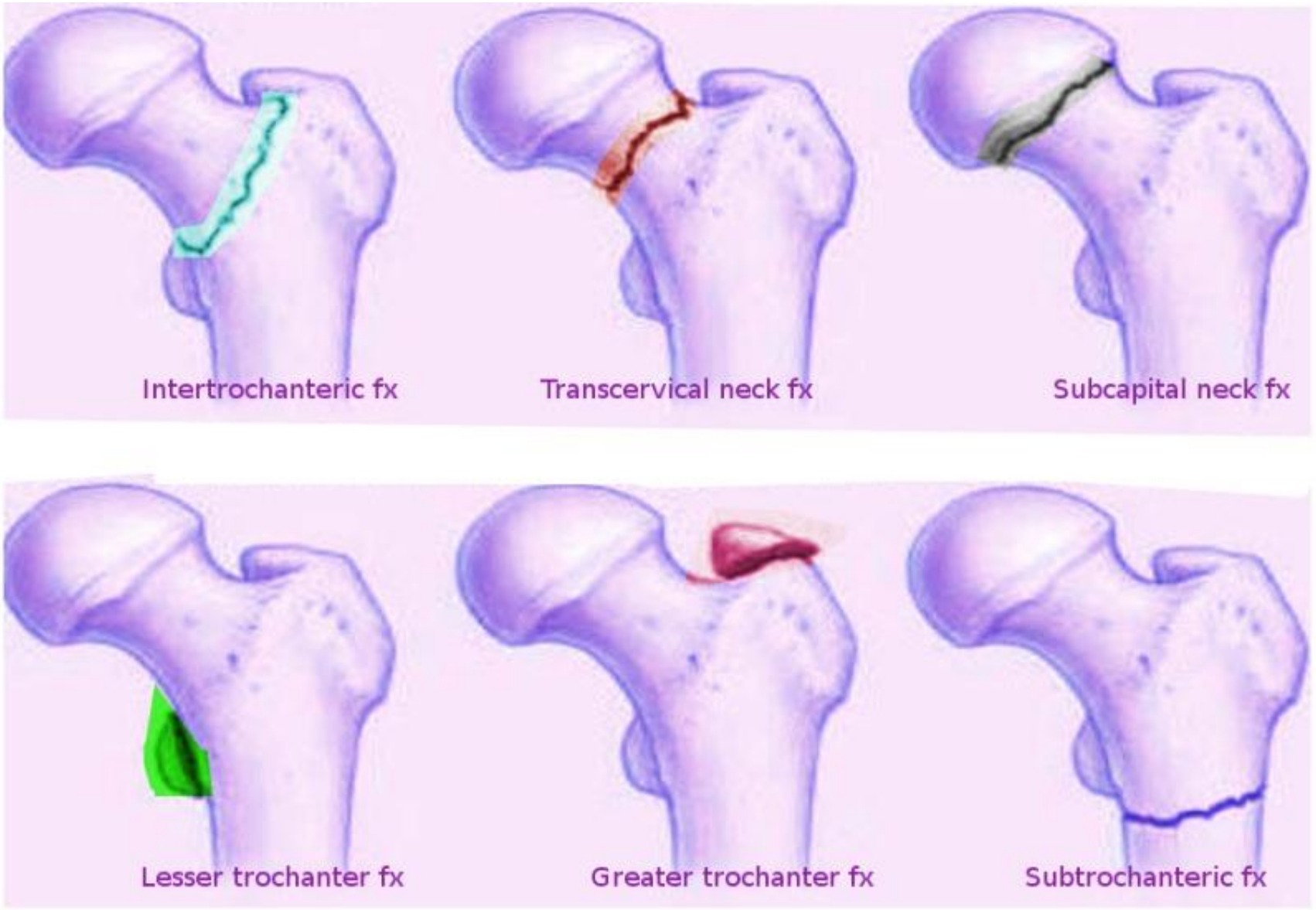
Since disruption of blood supply to the femoral head is dependent on the type of fracture and causes significant morbidity, the diagnosis and classification of these fractures is important.

There are three types:

Subcapital: femoral head/neck junction

Transcervical: midportion of femoral neck

Basicervical: base of femoral neck


Intertrochanteric fx
Transcervical neck fx
Subcapital neck fx
Lesser trochanter fx
Greater trochanter fx
Subtrochanteric fx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